

Valley County Water District



2010 Urban Water Management Plan

Volume 1 - Report

June 2011

Prepared by



GENERAL CIVIL, MUNICIPAL, WATER AND WASTEWATER ENGINEERING
PLANNING, CONSTRUCTION MANAGEMENT AND SURVEYING

Providing Professional Engineering Services since 1986

Valley County Water District 2010 Urban Water Management Plan Volume 1 - Report

PREPARED FOR

VALLEY COUNTY WATER DISTRICT
14521 RAMONA BLVD.
BALDWIN PARK, CA 91706

JUNE 2011

PREPARED BY



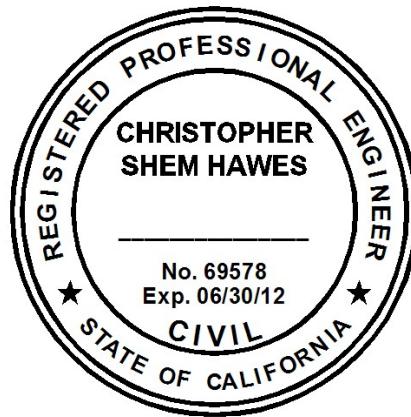
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JUNE 2011



Under the Supervision of:

C. SHEM HAWES, P.E.

69578
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PREPARER AND DISTRICT CONTACT INFORMATION

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Date UWMP was submitted by VCWD: July 11, 2011

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EXECUTIVE SUMMARY

Purpose and Organization

This 2010 Urban Water Management Plan for the Valley County Water District (UWMP) has been prepared in fulfillment of the requirements of the California Urban Water Management Planning Act (Act) and in compliance with the *Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan* (Guidebook) as provided by the California Department of Water Resources (DWR).

In addition to compliance with state mandate, this UWMP is a living document whose contents fulfill a variety of planning, informational and legal requirements. The accuracy, clarity, completeness and usefulness of this UWMP is defensible and representative of the District's best understanding of the state of water management at the time of adoption and/or amendment. To that end, all aspects of water management as they pertain to the District have been delineated in order to provide developers, planners, government agencies and its customers with the tools they need to fulfill their individual missions and interests.

To assist the reader in understanding the legal mandates involved in the various aspects of this UWMP, relevant and applicable excerpts for the California Water Code (CWC) are provided immediately following each section heading. These excerpts are cited by CWC section designation and offset in italic print to differentiate them from other text.

Background, Population and Demand

The District was formed in 1925 and incorporated in January 1926 under the name of Baldwin Park County Water District. On January 1, 1978, its name was officially changed to the Valley County Water District (VCWD).

VCWD is located in the San Gabriel Valley in the eastern portion of Los Angeles County. The District's sphere of influence consists of approximately 9.4 square miles made up of portions of the cities of Baldwin Park, Irwindale, West Covina and Azusa. Land use within the service area consists mainly of residential, commercial, industrial and open space designations.

The VCWD service area does not coincide directly with other political boundaries in the area. The table below provides a summary of the current and projected population within the VCWD service area based on an analysis of the distribution of residential service provided to the four cities that make up the District.

Year	2010	2015	2020	2025	2030	2035
VCWD population	69,784	71,003	72,319	73,588	74,810	75,978



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VCWD delivers water to a diverse set of customers including the residential, commercial, industrial and institutional and governmental sectors. Historical total water use has been somewhat variable from year to year, but recent efforts to encourage voluntary water conservation have resulted in more consistency over the last five years. The table below provides a summary of historical, current and projected water deliveries.

Year	2008 (AFY)	2009 (AFY)	2010 (AFY)	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Total Water Use	9,000.4	8,624.5	8,313.4	9,201	9,372	9,536	9,695	9,846

The California Water Conservation Act of 2009 (aka 20x2020, aka SB7x7) sets a goal for water use efficiency for all urban retail water suppliers equivalent to a 20% reduction in state-wide water use by the year 2020. Methodologies and techniques for the calculation of a supplier's water use target were developed by DWR following the passage of the Act and published in 2010 under the title *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*.

The table below represents the results of the application of the Act to VCWD's case in terms of gallons per capita per day (GPCD).

Year	2010	2015	2020
Water Use Designation	Baseline	Interim Target	Compliance Target
GPCD	120.9	119.6	118.3

GPCD was determined by the State to be the most equitable measurement of water use efficiency and therefore made the basis for water use efficiency reporting. GPCD is essentially total water delivered divided by total population, although there is degree of flexibility inherent in the calculation in response to addressing concerns from various stakeholders during the legislative review process. In VCWD's case, the baseline is a 10-year average (2000-2009) and the compliance target represents the minimum required reduction. VCWD's average for the last five years is 115.7 GPCD and the actual water use efficiency for 2010 is 106.4 GPCD. This means that the compliance water use target of 118.3 GPCD has already been achieved through current water conservation efforts at the district, wholesale and regional levels.

The State mandates that a water use reduction plan be implemented to achieve the compliance water use target. VCWD's water use reduction plan consists of continued vigilance and support of the current water conservation efforts delineated in Chapter 6. No additional efforts are considered to be required to maintain the current level of conservation and to meet the interim and compliance targets.



Supply

In general, VCWD prefers to rely on groundwater pumped from the Main San Gabriel Basin as its sole source of supply. As a party to the Main San Gabriel Basin adjudication, there is no limit to the quantity of groundwater that may be extracted, although replacement water must be purchased from USGVMWD for any volume beyond the sum of VCWD's share of the Operating Safe Yield of the Main San Gabriel Basin and any leases or purchases from other parties to the judgment that VCWD may arrange on its customers' behalf. Historically, VCWD has dealt with the issue of exceeding its adjudicated rights to Main San Gabriel Basin water with various combinations, on an as-needed basis, of (1) purchasing replacement water for the difference, (2) leasing additional rights on a short-term basis, (3) acquiring additional rights on a permanent basis, (4) purchasing surface water from MWD via USGVMWD who acts as the local wholesaler and (5) purchasing potable water from the Covina Irrigation Company (CIC). This business model serves VCWD very well. As a result, VCWD has not opted to enter into any long-term supply commitments beyond its existing rights in the Main San Gabriel Basin.

The State has determined that the development of recycled water is essential to long-term water reliability goals. Information related to the actual and potential use of recycled water, as mandated by the State, has been included in this UWMP. The development of recycled water in the western San Gabriel Valley is the purview of USGVMWD. There is no current or planned direct use of recycled water at VCWD. As such, the projected use of recycled water is zero, and there are no incentives or plans for optimization of this source.

Supply Reliability

VCWD prefers to provide all supply to its customers as groundwater extracted from the Main San Gabriel Basin. VCWD uses its rights as a party to the Main San Gabriel Basin judgment to best manage these local assets and to avoid reliance on imported water. As such, VCWD defers to USGVMWD regarding administration of issues related to acquiring replenishment water for purposes of recharging the Basin, a task which USGVMWD is ideally positioned for and suited to accomplishing in a manner consistent with the continued stewardship of the Basin.

Most wells operated by VCWD exhibit some level of contamination and must be treated to meet drinking water standards prior to introduction into the distribution system. VCWD currently operates three water treatment facilities which mitigate local groundwater contamination: the Lante, Maine and Nixon Treatment Facilities. With these water treatment facilities, VCWD has considerable capacity and flexibility in the use and management of its rights in the Main San Gabriel Basin.

VCWD is capable of meeting all demand scenarios it is projected to face during the planning horizon of this UWMP with its current supply portfolio including normal year, single dry year and multiple dry year supply and demand conditions.



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Demand Management Measures

Demand management measures are a collection of programs aimed at reducing water use through conservation. VCWD takes great pride in local achievements in the area of water conservation and the positive impact that reductions in water use have had on area communities. Voluntary water conservation has had the biggest impact of all for which residents within the VCWD water service area should be commended. Also noteworthy are the efforts of area and regional wholesalers, specifically USGVMWD and MWD, in their implementation of certain demand management measures determined to be beyond the purview or means of VCWD. Significant strides have been made in recent years resulting in improved water use efficiency. VCWD has achieved an average water use level of 115.7 GPCD over the past five years. This is already below the compliance water use target of 118.3 GPCD, mandated by the California Water Conservation Act of 2009. Precise quantification of the impact of individual demand management measures is elusive; however, the aggregate impact of the demand management measures, as implemented at both the retail and wholesale levels, is credited with the achievement of the current water use level. VCWD will continue its current intensity of implementation of demand management measures and foresees maintaining the water use efficiency of 115.7 GPCD throughout the planning horizon of this UWMP.

VCWD is not a member of the California Urban Water Conservation Council (CUWCC) and therefore has not submitted any reports on water conservation pursuant to the Memorandum of Understanding regarding Urban Water Conservation in California (MOU). However, VCWD is a member agency of USGVMWD who is a signatory to the MOU and who provides appropriate reporting to the CUWCC on all water conservation activities within its service area and purview. As such, VCWD enjoys the benefits of indirect involvement in the efforts of the CUWCC.



CHAPTER ONE – INTRODUCTION

1.1 General Description

The Urban Water Management Planning Act (Act) was adopted in 1983 and may be found in the California Water Code, §§10610-10656 (see Appendix A). The Valley County Water District is obligated to prepare and adopt this Urban Water Management Plan (UWMP) in the manner specified in the Act by virtue of meeting the statutory definition of an “urban retail water supplier”:

§10608.12(p) “Urban retail water supplier” means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

The Act, and elements of the California Water Conservation Act of 2009, require urban water suppliers to report, describe, and in some cases evaluate:

- ◆ water deliveries and uses
- ◆ water supply sources
- ◆ efficient water uses
- ◆ implementation strategy and schedule for demand management measures
- ◆ baseline, interim and compliance daily per capita water use
- ◆ water supply availability to meet existing and future demands
- ◆ water shortage and drought contingency planning

1.2 Purpose

This 2010 Urban Water Management Plan for the Valley County Water District (UWMP) has been prepared in fulfillment of the requirements of the California Urban Water Management Planning Act (Act) and in compliance with the *Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan* (Guidebook) as provided by the California Department of Water Resources (DWR).

The Guidebook provides guidance respective to the minimum requirements of the California Urban Water Management Planning Act and the recent legislative changes and amendments embodied in the California Water Conservation Act of 2009 and AB 1420 which more narrowly defines eligibility for water management grants and loans.



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In addition to compliance with state mandate, this UWMP is a living document whose contents fulfill a variety of planning, informational and legal requirements. It will serve as a primary source for integrated water and land use planning at the district, city and county levels per compliance with SB 610 and SB 221 related to water assessment and procurement of water supplies prior to construction of new development. The accuracy, clarity, completeness and usefulness of this UWMP is defensible and representative of the District's best understanding of the state of water management at the time of adoption and/or amendment. To that end, all aspects of water management as they pertain to the District have been delineated in order to provide developers, planners, government agencies and its customers with the tools they need to fulfill their individual missions and interests.

Substantial growth in the State of California is projected by the State Department of Finance, and there is no end in sight. The challenge facing water agencies, public agencies, planners and project proponents is to identify and secure the sources of water needed for the inevitable increase in population. From a water resources point of view, planning for such growth is addressed by SB 610, SB 221 and related jurisdictional General Plans.

Cities, counties, water districts, property owners, and developers will all be able to utilize the UWMP when planning for and proposing new projects. For certain "projects" meeting the definitions under SB 610 and/or SB 221, a city or county evaluating the environmental effects of that project must request a Water Supply Assessment (WSA) from the water provider or prepare the WSA on its own. A WSA can rely on an adopted and DWR-approved UWMP making the UWMP a foundational document for compliance with both SB 610 and SB 221. Both of these statutes repeatedly identify the UWMP as a planning document that, if properly prepared, can be used by a water supplier to meet the standards set forth in both statutes. A thorough and complete UWMP will allow VCWD to use the UWMP as a foundation to fulfill the specific requirements of these two statutes.

SB 610 creates a strong link between water supply availability and land use by requiring cities and counties to consider water availability for certain development projects. It promotes collaboration between local water suppliers and cities/counties while recognizing the importance of local control and decision making regarding water availability.

SB 221 requires written verification of sufficient water supply from the water supplier prior the construction of residential subdivisions of greater than 500 dwelling units. A "sufficient water supply" includes assessment of the water supplier's available projected water supplies for a 20-year period during normal years, single-dry years and multiple-dry years. This assessment must consider the subdivision's water demands in addition to existing and planned future demands.

The UWMP serves as an important source document for cities and counties as they update their General Plans. Conversely, General Plans are source documents as water



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suppliers update their UWMPs. These planning documents are linked and their accuracy and usefulness are interdependent. It is crucial that cities, counties and water suppliers work closely when developing and updating these planning documents.

1.3 Organization

To assist the reader in understanding the legal mandates involved in the various aspects of this UWMP, relevant and applicable excerpts for the California Water Code (CWC) are provided immediately following each section heading. These excerpts are cited by CWC section designation and offset in italic print to differentiate them from other text.

In general, the chapters of this UWMP are laid out as presented in the Guidebook along with recommended tables and other content.

1.4 Coordination

§10620(d)(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

§10621(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

§10635(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

The following were notified of VCWD's intent to update its UWMP (see Appendix K):

- ◆ Los Angeles County
- ◆ City of Baldwin Park
- ◆ City of Irwindale
- ◆ City of Azusa
- ◆ City of West Covina



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Additional coordination was made with other relevant agencies and the public as shown in Table 1.

Table 1 – Coordination with Appropriate Agencies

Coordinating Agencies	City of Baldwin Park	City of Irwindale	City of West Covina	City of Azusa	Los Angeles County	LAC Sanitation Districts	USGVMWD	General Public
Participated in developing the plan								
Commented on the draft						✓		
Attended public meetings								
Was contacted for assistance						✓	✓	
Was sent a copy of the draft plan								
Was sent a notice of intention to adopt	✓	✓	✓	✓	✓			✓
Not involved / No information								

1.5 Review

§10642 Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.

§10642 Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area.

§10645 Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

The bulk of the review this UWMP occurred internally among VCWD staff. Correspondence with the Los Angeles County Sanitation Districts also proved helpful in



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the area of recycled water. The plan was made available to public prior to adoption (see Appendix L); no public comments were forthcoming.

A copy of this UWMP is available for public review and use at VCWD.

1.6 Adoption

§10621(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

§10642 After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

This UWMP was adopted June 13, 2011 pursuant to Resolution No. 06-11-705 (see Appendix B) following a public hearing related to this UWMP update.

1.7 Submittal

§10644(a) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

§10608.20 A 6-month extension has been granted for submittal of the 2010 UWMPs to provide additional time for suppliers to address the requirements for a 20% reduction from the "baseline daily per capita water use" by Dec. 31, 2020.

This UWMP was submitted to DWR, the California State Library, Los Angeles County, USGVMWD and the cities of Baldwin Park, Irwindale, Azusa and West Covina on July 11, 2011.

1.8 Online Data Submittal

DWR is establishing an online data submittal portal for urban water suppliers. Suppliers will be able to go online and complete tables and download them into their plans. The portal, referred to as DOST (DWR Online Submittal Tool), will have an audit system to allow suppliers to double check they have submitted all the data. Suppliers who use the online data submittal system and have a state water grant or loan or have submitted a grant proposal will receive priority review. DWR sees on line data submittal as a way to speed up reviews, better manage the data received, standardize data reporting, and enable a direct linkage to the data used to prepare the California Water Plan.



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VCWD has opted not to participate in the online submittal process at this time.

1.9 Implementation

§10643 An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

Implementation of this UWMP is included in the water use reduction plan and the continued maintenance of the District's groundwater supply infrastructure.

1.10 Judicial Review

Any actions or proceedings to invalidate the decisions of an urban water supplier on the grounds of non-compliance with the UWMP Act must be commenced as follows:

- ◆ 90-Day Rule: Any action alleging that a plan, or action taken pursuant to the plan, does not comply with the UWMP Act must be commenced within 90 days after filing of the plan or amendment thereto with DWR.
- ◆ 18-Month Rule: Any action alleging failure to adopt a plan must be commenced within 18 months after that adoption is required by the UWMP Act.

In challenging the plan's compliance with the UWMP Act, judicial review is limited to whether there was a prejudicial abuse of discretion. These abuses are limited to the supplier not proceeding in a manner required by law or the plan not being supported by substantial evidence (§10651).

The UWMP standard of judicial review was established per *Sonoma County Water Coalition, et al. v. Sonoma County Water Agency*, California Court of Appeal for the Fourth District, Case No. A124556 (October 8, 2010) as:

“In technical matters requiring the assistance of experts and the study of marshaled scientific data as reflected herein, courts will permit administrative agencies to work out their problems with as little judicial interferences as possible.”

This means that the court acknowledges the complexities of collecting and interpreting data related to water supply and demand and defers to the knowledge of the water supplier and expertise of consultants providing their services on the supplier's behalf. No additional standards were deemed necessary by the court to validate conclusions related to collection and interpretation of data.

In addition to diligence in data collection and interpretation, care was taken to present this UWMP as a legal document paying particular attention to the following areas of emphasis in order to avoid becoming a target for litigation:



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- Expect this UWMP to be a litigation target.
- Disclose all physical and legal regulatory factors affecting projected availability of existing and planned future sources of water supply.
- Clearly describe the basis for each assumption about how those factors will affect supply availability.
- Clearly describe how projected water demand was calculated.
- Disclose assumptions about the effect of water conservation measures on projected demand.
- Clearly describe the basis for conservation assumptions.

1.11 Acknowledgements

We, at **CIVILTEC Engineering Inc.**, would like to express our appreciation for the cooperation and valuable assistance of Valley County Water District. In particular, the efforts of the following people, proved to be invaluable:

- Brian Dickinson, Valley County Water District General Manager
- Lynda Noriega, Valley County Water District Interim General Manager
- Tom Mortenson, Valley County Water District Operations & Maintenance Manager

1.12 Abbreviations

Following is a list of common and conventional abbreviations that appear in this report.

AB	Assembly Bill
AF	acre-feet
AFY	acre-feet per year
ARRA	American Recovery and Reinvestment Act of 2009
BPOU	Baldwin Park Operable Unit
CBMWD	Central Basin Municipal Water District
CCF	100 cubic feet
CEQA	California Environmental Quality Act
CIC	Covina Irrigation Company
CII	commercial, industrial, and institutional
Civiltec	Civiltec Engineering, Inc.
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
D	demand
DMM	demand management measure



CHAPTER ONE – INTRODUCTION

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DOF	California Department of Finance
DOST	DWR online submittal tool
DU	dwelling unit
DWR	California Department of Water Resources
F	Fahrenheit
FY	fiscal year
GPCD	gallons per capita per day
gpm	gallons per minute
GRIP	Groundwater Reliability Improvement Project
HET	high efficiency toilet
IRWM	Integrated Regional Water Management
IRWMP	Integrated Regional Water Management Plan
JOS	Joint Outfall System
LACSD	Los Angeles County Sanitation Districts
lbs	pounds
LU	land use
Method 4	Urban Water Use Target Method 4
MOU	Memorandum of Understanding
MWD	Metropolitan Water District of Southern California
OSY	Operating Safe Yield
RHNA	Regional Housing Needs Allocation
SB	Senate Bill
SCAG	Southern California Association of Governments
SWS	Suburban Water Systems
ULFT	ultra low flush toilet
USGVMWD	Upper San Gabriel Valley Municipal Water District
UWMP	Urban Water Management Plan
VCWD	Valley County Water District
VV	Valley View Mutual Water Company
VWS	Verification of Water Supply
WRD	Water Replenishment District of Southern California
WRP	Water Reclamation Plant
WSA	Water Supply Assessment



CHAPTER TWO – SYSTEM DESCRIPTION

VALLEY COUNTY WATER DISTRICT

CHAPTER TWO – SYSTEM DESCRIPTION

2.1 General Description

The District was formed in 1925 and incorporated in January 1926 under the name of Baldwin Park County Water District. On January 1, 1978, its name was officially changed to the Valley County Water District (VCWD).

VCWD is located in the San Gabriel Valley in the eastern portion of Los Angeles County. The sphere of influence consists of approximately 9.4 square miles made up of portions of the cities of Baldwin Park, Irwindale, West Covina and Azusa. Land use within the service area consists mainly of residential, commercial, industrial and open space designations.

2.2 Service Area Description

§10631(a) Describe the service area of the supplier.

The service area includes 5,935 acres as shown in Figure 1.

The City of Baldwin Park accounts for 48% of the service area and 92% of the service connections. The City of Irwindale accounts for 49% of the service area but only 5% of the service connections. The remaining area, only 3%, lies within the cities of West Covina and Azusa. A small portion of the VCWD sphere of influence (less than 1%) is served by the San Gabriel Valley Water District. A breakdown of area distribution is provided in Table 2.

Table 2 – Area Breakdown by Jurisdiction

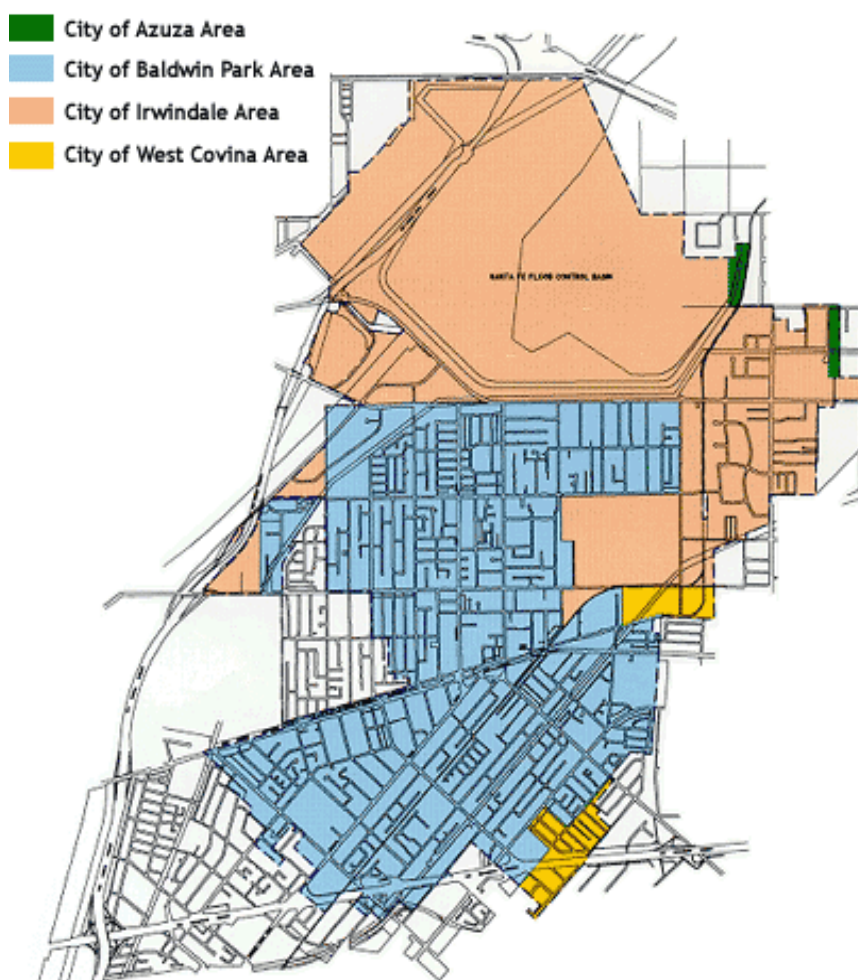
Jurisdiction	SOI Area (acres)	Service Area (acres)	Percent of Service Area
Baldwin Park	2,900.12	2,865.92	48.3%
Irwindale	2,907.45	2,907.45	49.0%
West Covina	149.17	128.42	2.2%
Azusa	33.21	33.21	0.6%
VCWD	5,989.95	5935.00	100.0%



CHAPTER TWO – SYSTEM DESCRIPTION

VALLEY COUNTY WATER DISTRICT

Figure 1 – VCWD Service Area



2.3 Climate

§10631(a) (Describe the service area) climate.

Information on climate was provided by the IDcide.com website¹ and based on data compiled from the National Climactic Data Center, the National Oceanic and Atmospheric Administration and the National Weather Service per continuous meteorological data collected at the San Gabriel Fire Department (approximately 8 miles from the VCWD service area) and the City of Covina Maintenance Yard (approximately 4.7 miles from the VCWD service area).

The climate is warm during summer when temperatures tend to be in the 70's and cool during winter when temperatures tend to be in the 50's.

¹ IDcide website (<http://www.idcide.com/weather/ca/baldwin-park.htm>) accessed March 24, 2011



CHAPTER TWO – SYSTEM DESCRIPTION

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The warmest month of the year is August with an average maximum temperature of 90.2 °F, while the coldest month of the year is December with an average minimum temperature of 41.9 °F. Temperature variations between night and day tend to be moderate during both summer and winter with an average difference that can reach 27 °F.

The annual average precipitation is 19.0 inches. Winter months tend to be wetter than summer months. The wettest month of the year is February with an average rainfall of 4.4 inches.

2.4 Population

§10631(a) (Describe the service area) current and projected population . . . The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier . . . (population projections) shall be in five-year increments to 20 years or as far as data is available.

§10608.20(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

The VCWD service area does not coincide directly with other political boundaries in the area, overlying portions of the cities of Baldwin Park, Irwindale, West Covina and Azusa. In order to develop a relationship with city-based published population data, the following methodology was employed:

City of Baldwin Park

A land use survey was conducted as part of the 1999 VCWD Water System Master Plan. This survey determined that the area within the VCWD service area that coincided with residential land use in the City of Baldwin Park was 1,928 acres. Per the City of Baldwin Park 2020 General Plan, the total area designated for residential land use is 2,153 acres. By deduction, the percentage of Baldwin Park's population within the VCWD service area is assumed to be equivalent to that of the associated residential land use area, or 89.5%.

$$\frac{LU_{\text{residential within VCWD}}}{LU_{\text{residential within Baldwin Park}}} = \frac{1,928 \text{ acres}}{2,153 \text{ acres}} (100\%) = 89.5\%$$

City of Irwindale

The portion of the population of Irwindale that resides within the VCWD service area is assumed to be equivalent to the portion of Irwindale households that are located within that boundary. By inspection, there are 336 dwelling units that coincide with the City of Irwindale and the VCWD service area. According to the 2008 City of Irwindale General



CHAPTER TWO – SYSTEM DESCRIPTION

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Plan Update, there is a total of 403 dwelling units in the City. By deduction, the percentage of Irwindale's population within the VCWD service area is assumed to be equivalent to that of the associated distribution of dwelling units, or 83.4%.

$$\frac{DU \text{ within VCWD}}{DU \text{ within Irwindale}} = \frac{336 \text{ units}}{403 \text{ units}} (100\%) = 83.4\%$$

City of West Covina

The portion of the population of West Covina that resides within the VCWD service area is assumed to be equivalent to the portion of West Covina households that are located within that boundary. By inspection, there are 328 dwelling units that coincide with the City of West Covina and the VCWD service area. According to the Community Profile published on the City of West Covina's website, there is a total of 32,058 dwelling units in the City. By deduction, the percentage of West Covina's population within the VCWD service area is assumed to be equivalent to that of the associated distribution of dwelling units, or 1.0%.

$$\frac{DU \text{ within VCWD}}{DU \text{ within West Covina}} = \frac{328 \text{ units}}{32,058 \text{ units}} (100\%) = 1.0\%$$

City of Azusa

According to the Gateway to the American Dream: Azusa General Plan, none of the portion of the City of Azusa that is serviced by VCWD is residential. Therefore, none of the population of the City of Azusa is assumed to reside within the VCWD service area.

The populations for the cities of concern to VCWD were provided by two sources. The California Department of Finance (DOF) Demographic Research Unit State Census Data Center has compiled 2010 city-level population estimates based on data generated by the 2010 US Census. The DOF data are shown in Table 3 for the year 2010. The Southern California Association of Governments (SCAG) has published population projections for member cities and communities based on data generated by the 2000 US Census, DOF and input from local jurisdictions and stakeholders in its Adopted 2008 Regional Transportation Plan Growth Forecast by City. For purposes of this UWMP, only the projected SCAG growth rates have been used for population projections. Application of those growth rates is shown in Table 3 for 2015 through 2035.



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Table 3 – Populations for Relevant Cities

Year	2010	2015	2020	2025	2030	2035
Baldwin Park	75,390	76,536	77,787	78,992	80,152	81,261
Irwindale	1,422	1,589	1,755	1,919	2,077	2,228
West Covina	106,098	111,420	116,860	122,110	127,189	132,040
Azusa	46,361	48,085	49,376	50,707	51,993	53,230

Table 4 provides a summary of the application of population distribution within the VCWD service area based on the above analysis and published data.

Table 4 – Current and Projected VCWD Population

Year	2010	2015	2020	2025	2030	2035
VCWD population	69,784	71,003	72,319	73,588	74,810	75,978

2.5 Demographics

§10631(a) Describe . . . other demographic factors affecting the supplier's water management planning.

The VCWD service area overlies portions of four cities each with its own demographic characteristics, trends and planners. As such, there is no prevailing demographic or planning vision specific to VCWD. The residential population served by VCWD is considered to be primarily in the lower to middle income brackets.

Baldwin Park and West Covina are primarily residential and commercial in nature. Irwindale and Azusa are primarily industrial and commercial in nature. From an UWMP point of view, an import concern is the potential for significant industrial or commercial development in Irwindale and the impact of the associated increase in water demand to skew the current water conservation efforts of the rest of the District.



CHAPTER THREE – SYSTEM DEMANDS

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3.1 General Description

VCWD delivers water to a diverse set of customers including in the residential, commercial, industrial and institutional and governmental sectors. Historical total water use has been somewhat variable from year to year, but recent efforts to encourage voluntary water conservation have resulted in more consistency over the last five years.

The sections that follow provide a summary of historical, current and projected water demands.

3.2 Historical Water Demands

§10631(e)(1) and (2) Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses: (A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; (I) Agricultural.

The availability of data related to consumption by end users for complete calendar years of the detail requested above is limited to the period of 2008 through 2010 which coincides with the implementation of new billing software. For this reason, Table 5, Table 6 and Table 13 deviate from the typical and preferred 5-year increment.

Table 5 – Actual Water Deliveries for 2008 and 2010

Water use sectors ²	2008 (AFY)	2009 (AFY)	2010 (AFY)
Single-family Residential	3,446.5	4,434.7	4,574.7
Multi-family Residential	855.9	1,073.2	1,065.1
Commercial	1,198.6	1,773.7	1,441.0
Industrial	200.1	259.8	254.2
Institutional and Governmental	809.0	593.4	546.6
System Losses	2,490.3	489.7	431.8
Total	9,000.4	8,624.5	8,313.4

² No deliveries were made to customers in the following water use sectors: sales to other agencies, saline water intrusion barriers, groundwater recharge, conjunctive use, agricultural



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Table 6 – Transfers to Other Agencies for 2008 and 2010

Agency	2008 (AFY)	2009 (AFY)	2010 (AFY)
SWS	0.0	0.0	0.0
VV	1.8	3.2	0.4
Santa Fe Dam	23.7	30.3	33.5
Total	25.5	33.5	33.9

3.3 Projected Water Demands

§10631(k) Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

The projected water deliveries shown in Table 7 take into consideration the impact of population growth and the continued application water conservation efforts. The average per capita water use over the last five years is 115.7 GPCD, and current water conservation efforts are anticipated to at least maintain this level. In addition to minimizing the impact of excessive demand on supply, this level of per capita water use assures compliance with the water use goals discussed in §3.6 and summarized in Table 16. Water loss is assumed to be 5% of total deliveries and water use by sector is assumed to be proportional to average water use by sector over the last three years.



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Table 7 – Projected Water Deliveries through 2035

Water use sectors ³	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Single-family Residential	4,845	4,935	5,022	5,105	5,185
Multi-family Residential	1,165	1,186	1,207	1,227	1,246
Commercial	1,717	1,749	1,779	1,809	1,837
Industrial	278	283	288	293	297
Institutional and Governmental	758	772	786	799	811
System Losses	438	446	454	462	469
Total	9,201	9,372	9,536	9,695	9,846

3.4 Lower-income Water Demands

§10631.1(a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

§50079.5(a) "Lower income households" means persons and families whose income does not exceed the qualifying limits for lower income families as established and amended from time to time pursuant to Section 8 of the United States Housing Act of 1937. The limits shall be published by the department in the California Code of Regulations as soon as possible after adoption by the Secretary of Housing and Urban Development. In the event the federal standards are discontinued, the department shall, by regulation, establish income limits for lower income households for all geographic areas of the state at 80 percent of area median income, adjusted for family size and revised annually.

§50079.5 (b) "Lower income households" includes very low income households, as defined in Section 50105, and extremely low income households, as defined in Section 50106. The addition of this subdivision does not constitute a change in, but is declaratory of, existing law.

§50079.5 (c) As used in this section, "area median income" means the median family income of a geographic area of the state.

The housing elements of the general plans of the cities served by VCWD cite the Southern California Association of Governments (SCAG) as the primary source for

³ No deliveries are anticipated to be made to customers in the following water use sectors: sales to other agencies, saline water intrusion barriers, groundwater recharge, conjunctive use, agricultural



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application of the Regional Housing Needs Allocation (RHNA) plan. For this reason, data developed by SCAG, rather than as noted in the associated housing elements, has been gathered and analyzed for purposes of complying with §10631.1(a).

Analysis of lower-income water demand was performed in three parts.

- Estimate of existing lower-income population
- Estimate of SCAG near-term projection for lower-income housing
- Application of SCAG near-term projection breakdown to long-term growth trends

3.4.1 Existing Lower-income Population

For purposes of estimating existing lower-income population served by VCWD, lower-income was defined as households earning less than \$50,000 in 2007. This year and income limit coincides with the best available data for making this determination which were taken from the following sources published by SCAG:

- Profile of the City of Baldwin Park
- Profile of the City of Irwindale
- Profile of the City of West Covina

Table 8 – Existing Low-income Water Demands

City	2010 Population ⁴	% Population within VCWD ⁵	% Lower-income ⁶	Lower-income Population within VCWD
Baldwin Park	75,390	89.5%	50.9%	34,363
Irwindale	1,422	83.4%	48.3%	573
West Covina	106,098	1.0%	38.8%	421
2010 VCWD Lower-income Population				35,357

3.4.2 Near-term Lower-income Population Increase Projection

In general, SCAG prepares a regional housing needs plan once every five years and began the fourth cycle of the regional housing needs allocation (RHNA) in 2005 in coordination with the California Department of Housing and Community Development. The current planning period is January 1, 2006 to June 30, 2014. For purposes of

⁴ See Table 3

⁵ See Section 2.4

⁶ Per May 2008 SCAG Profiles of the Cities of Baldwin Park, Irwindale and West Covina



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estimating the near-term lower-income population, the following assumptions were made:

- The 2015 lower-income population increase represents completion of that portion of allocated lower-income housing in Baldwin Park, Irwindale and West Covina per the current RHNA that coincides with the VCWD service area
- Conversion of households to population is based on the latest SCAG average household size for each city
- That portion of Azusa served by VCWD is not designated for residential land use and was not considered in this calculation

Table 9 – Near-term Low-income Population Increase

City	RHNA Lower-income Units ⁷	Persons per Household ⁸	% Population within VCWD ⁹	Lower-income Population within VCWD
Baldwin Park	301	4.6	89.5%	1,240
Irwindale	27	4.1	83.4%	92
West Covina	1,019	3.5	1.0%	36
2015 VCWD Lower-income Population Increase				1,369

3.4.3 Long-term Lower-income Population Increase Projection

For near-term purposes, SCAG provided a breakdown by percentage of income-based future housing needs for each city within its planning region¹⁰. Long-term estimates for increases in lower-income population are based on the following assumptions:

- Lower-income population changes proportionally to the general population on a city-by-city basis
- Near-term income distribution remains constant for long-term projections for each city
- That portion of Azusa served by VCWD is not designated for residential land use and was not considered in this calculation.

Table 10 contains data for Baldwin Park, Irwindale and West Covina as follows:

⁷ Per Final RHNA Plan, 2007 – Number of low and very low income households

⁸ Per May 2008 SCAG Profiles of the Cities of Baldwin Park, Irwindale and West Covina

⁹ See Section 2.4

¹⁰ Final RHNA Plan, 2007



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- The population increase is the difference in projected population between each 5-year reporting period.
- The lower-income housing percentage is the sum of SCAG projections for low and very low income households.
- The percentage of population within VCWD is as calculated in Section 2.4.
- The lower-income population increase within VCWD is the population increase times the lower-income housing percentage times the percent of population within VCWD.
- The total VCWD lower-income population increase is the sum of the lower-income population increases within VCWD from each city.

Table 10 – Long-term Low-income Population Increase

City	Year	2020	2025	2030	2035
Baldwin Park	Population Increase	1,374	1,323	1,273	1,217
	% Lower-income	40.3%	40.3%	40.3%	40.3%
	% within VCWD	89.5%	89.5%	89.5%	89.5%
	Population within VCWD	496	477	459	439
Irwindale	Population Increase	208	204	197	189
	% Lower-income	40.3%	40.3%	40.3%	40.3%
	% within VCWD	83.4%	83.4%	83.4%	83.4%
	Population within VCWD	70	69	66	64
West Covina	Population Increase	5,914	5,708	5,521	5,273
	% Lower-income	41.4%	41.4%	41.4%	41.4%
	% within VCWD	1.0%	1.0%	1.0%	1.0%
	Population within VCWD	25	24	23	22
Total VCWD Lower-income Population Increase		591	570	549	525

3.4.4 Summary of Lower-income Population and Demand Projection

Results of the calculations performed in Table 8, Table 9 and Table 10 are summarized in Table 11. In general, projected lower-income population is assumed to be the existing lower-income population plus the cumulative increase in lower-income population.



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Table 11 – Projected Lower-income Population

Year	2015	2020	2025	2030	2035
VCWD Lower-income Population	35,357	35,948	36,518	37,067	37,592

Residential demand per person in 2010 is as follows per data included in Table 4 and Table 5:

$$\frac{D_{\text{single family}} + D_{\text{multi family}}}{\text{population}} = \frac{4,574.7 \text{ AFY} + 1,065.1 \text{ AFY}}{69,782 \text{ persons}} = 0.0808 \text{ AFY per person}$$

Assuming lower-income residences are distributed among single- and multi-family units proportionally to the service area at large, Table 12 provides a summary of projected lower-income water demands.

Table 12 – Projected Low-income Water Demands

Land Use Type	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Single-family Residential	2,317	2,356	2,393	2,429	2,464
Multi-family Residential	540	549	557	566	574

3.5 Summary of Water Demands

Total water use as indicated in Table 5 (historical data) and Table 7 (projected use) is summarized in Table 13.

Table 13 – Past, Current and Projected Total Water Use

	2008 (AFY)	2009 (AFY)	2010 (AFY)	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Total Water Use	9,000.4	8,624.5	8,313.4	9,201	9,372	9,536	9,695	9,846

3.6 Application of the Water Conservation Act

§10608.20(e) An urban retail water supplier shall include in its urban water management plan . . . due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.



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The California Water Conservation Act of 2009 (aka 20x2020, aka SB7x7) sets a goal for water use efficiency for all urban retail water suppliers equivalent to a 20% reduction in water use state-wide by the year 2020. Methodologies and techniques for the calculation of a supplier's water use target were developed by DWR following the passage of the Act and published in 2010 under the title *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*.

There are multiple methodologies in place for determining water use targets and complying with the Water Conservation Act. This section is dedicated to specifying chosen methodologies, justifying those choices, quantifying applicable parameters, performing calculations, stating conclusions about those calculations and applying those conclusions commensurate to the requirements of future water conservation goals as embodied in the Act.

3.6.1 Baseline Per Capita Water Use

The baseline per capita water use was calculated as the average over a ten-year period from 2000 to 2009 at 120.9 GPCD as shown in Table 14.

Table 14 – Summary of Per Capita Water Use Data

Year	Population	Supply (AFY)	Water Use (GPCD)
2000	70,192	9,601	122.1
2001	70,151	9,289	118.2
2002	70,110	9,467	120.6
2003	70,069	9,419	120.0
2004	70,028	11,741	149.7
2005	69,987	8,957	114.3
2006	69,946	9,074	115.8
2007	69,905	9,634	123.0
2008	69,864	9,000	115.0
2009	69,823	8,634	110.4
Baseline Per Capita Water Use			120.9

3.6.2 Compliance Methodology

VCWD has adopted as its compliance methodology Method 3 as provided in DWR's *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*.

Per Method 3, the target for compliance per capita water use is 95% of the South Coast hydrologic region target or 142 GPCD.



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3.6.3 Verification of Minimum Water Use Reduction Requirement

§10608.22. Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

The Baseline was determined to be 120.9 GPCD; therefore, the above verification must be performed since the Baseline exceeds 100 GPCD. Based on data provided in Table 14, verification is presented in Table 15.

Table 15 – Minimum Water Use Reduction Verification

Year	Population	Supply (AFY)	Water Use (GPCD)
2003	70,069	9,419	120.0
2004	70,028	11,741	149.7
2005	69,987	8,957	114.3
2006	69,946	9,074	115.8
2007	69,905	9,634	123.0
Average			124.6
95% of Average			118.3

Since the minimum water use reduction requirement is lower than the target water use provided by Method 3, the minimum water use reduction requirement of 118.3 GPCD must be adopted as the compliance water use target.

3.6.4 Interim and Compliance Per Capita Water Use Targets

As determined in previous sections, the baseline per capita water use is 120.9 GPCD, the compliance per capita water use is 118.3 GPCD and the interim per capita water use is the midpoint between these figures. A summary is provided in Table 16.

Table 16 – Summary of Per Capita Water Use Baseline and Targets

Year	2010	2015	2020
Water Use Designation	Baseline	Interim Target	Compliance Target
GPCD	120.9	119.6	118.3



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3.7 Water Use Reduction Plan

§10608.36 Urban wholesale water suppliers shall include in the urban water management plans . . . an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part.

The compliance water use target of 118.3 GPCD has already been achieved through current water conservation efforts at the district, wholesale and regional levels. Therefore, the water use reduction plan consists of continued vigilance and support of the current water conservation efforts delineated in Chapter 6. No additional efforts are considered to be required to maintain the current level of conservation and to meet the interim and compliance targets.



CHAPTER FOUR – SYSTEM SUPPLIES

4.1 General Description

In general, VCWD prefers to rely on groundwater pumped from the Main San Gabriel Basin as its sole source of supply. As a party to the Main San Gabriel Basin adjudication (see Appendix C), there is no limit to the quantity of groundwater that may be extracted, although replacement water must be purchased from USGVMWD for any volume beyond the sum of VCWD's share of the Operating Safe Yield of the Main San Gabriel Basin and any leases or purchases from other parties to the judgment that VCWD may arrange on its customers' behalf. Historically, VCWD has dealt with the issue of exceeding its adjudicated rights to Main San Gabriel Basin water with various combinations, on an as-needed basis, of (1) purchasing replacement water for the difference, (2) leasing additional rights on a short-term basis, (3) acquiring additional rights on a permanent basis, (4) purchasing surface water from MWD via USGVMWD who acts as the local wholesaler and (5) purchasing potable water from the Covina Irrigation Company (CIC). This business model serves VCWD very well. As a result, VCWD has not opted to enter into any long-term supply commitments beyond its existing rights in the Main San Gabriel Basin.

4.2 Water Sources

§10631(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).

Table 17 indicates the current and projected water supplies at VCWD's disposal. The following sections discuss these sources in greater detail.

Table 17 – Current and Projected Water Supplies

Water Supply	2010 ¹¹ (AFY)	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Import from MWD	1,609.2	941	941	941	941	941
Import from CIC	158.1	256	256	256	256	256
Groundwater	6,580.0	9,159	9,159	9,159	9,159	9,159
Transfer to SWS	0.0	0.0	0.0	0.0	0.0	0.0
Transfer to VV	-0.4	0.0	0.0	0.0	0.0	0.0
Transfer to Santa Fe Dam	-33.5	0.0	0.0	0.0	0.0	0.0
Total	8,313.4	10,356	10,356	10,356	10,356	10,356

¹¹ Based on fiscal year 2009-10.



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4.2.1 Imported Water

Imported water is available from two sources: USGVMWD and CIC. VCWD maintains no long-term contracts or commitments with these agencies.

Historically, imported water from USGVMWD has been used for emergency purposes or when groundwater production was temporarily unavailable. Recent improvements to groundwater treatment equipment and capacity necessitated the temporary shutdown of certain groundwater production facilities as part of the inspection process with the California Department of Public Health. During this time, imported water from USGVMWD was purchased to make up for this temporary loss of production. Following the inspection and authorization to return groundwater production to sustainable levels, imported water purchases from USGVMWD were curtailed. Nonetheless, imported water from USGVMWD has contributed to the VCWD supply portfolio and is anticipated to be available in an amount equivalent to the average deliveries of the past 11 year at 941 AFY.

CIC has been a frequent business partner of VCWD, and this relationship is anticipated to continue. Generally, CIC has excess groundwater rights in the Main San Gabriel Basin and their distribution system is in the vicinity as that of VCWD which make this relationship reliable and convenient. VCWD anticipate imported water from CIC to be available in an amount equivalent to the average deliveries of the past 11 year at 256 AFY.

Table 18 indicated to volumes anticipated to be available from USGVMWD and CIC based on recent historical data.

Table 18 – Current and Projected Imported Water Supplies

Water Supply	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Import from MWD	941	941	941	941	941
Import from CIC	256	256	256	256	256

4.2.2 Groundwater

§10631(b) (Is) groundwater . . . identified as an existing or planned source of water available to the supplier . . .

§10631(b)(1) (Provide a) copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.



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§10631(b)(2) (Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, (provide) a copy of the order or decree adopted by the court or the board. (Provide) a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

§10631(b)(3) (Provide a) detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

§10631(b)(4) (Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

VCWD operates 7 wells, all of which extract groundwater from the Main San Gabriel Basin, designated: Lante, SA1-1, SA1-2, Maine West, Maine East, Nixon West and Nixon East.

Per DWR (Bulletin 118), the Main San Gabriel Valley Groundwater Basin is located in eastern Los Angeles County and includes the water-bearing sediments underlying most of the San Gabriel Valley and includes a portion of the upper Santa Ana Valley that lies in Los Angeles County. This basin is bounded on the north by the Raymond fault and the contact between Quaternary sediments and consolidated basement rocks of the San Gabriel Mountains. Exposed consolidated rocks of the Repetto, Merced, and Puente Hills bound the basin on the south and west, and the Chino fault and the San Jose fault form the eastern boundary. The Rio Hondo and San Gabriel drainages have their headwaters in the San Gabriel Mountains, then surface water flows southwest across the San Gabriel Valley and exit through the Whittier Narrows, a gap between the Merced and Puente Hills.

The water-bearing materials of this basin are dominated by unconsolidated to semi-consolidated alluvium deposited by streams flowing out of the San Gabriel Mountains. These deposits include Pleistocene and Holocene alluvium and the lower Pleistocene San Pedro Formation.



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Holocene alluvium generally forms alluvial fans along the San Gabriel Mountains and stream deposits that follow the course of the major streams and rivers across the valley. This young alluvium reaches 100 feet in thickness and although is typically above the water table, allows effective percolation of surface water in the basin. Upper Pleistocene alluvium deposits form most of the productive water-bearing deposits in this basin. They consist of unsorted, angular to sub-rounded sedimentary deposits ranging from boulder-bearing gravels near the San Gabriel Mountains to sands and silts in the central and western parts of the basin. Thickness varies from 40 feet in the north to about 4,100 feet in the central portion of the basin.

The lower Pleistocene San Pedro Formation consists of inter-bedded marine sand, gravel, and silt. This formation bears fresh water and reaches a maximum thickness of about 2,000 feet and may grade eastward into continental deposits indistinguishable from the overlying Pleistocene age alluvium.

The exposed consolidated rocks in the Merced, Repetto, and Puente Hills form barriers to groundwater flow to the south and southwest. South Hill, in the northeastern portion of the basin, is emergent basement that diverts groundwater flow around it. The Raymond fault is an east-northeast trending structure forming the boundary between the Raymond Groundwater Basin and this Basin. This fault is a complete barrier along its western end and becomes less effective east of Santa Anita Wash allowing groundwater flow into the Basin. The Lone Hill–Way Hill fault system trends northeast and displaces the water table about 150 feet down to the south. The Sierra Madre fault system trends east along the front of the San Gabriel Mountains and displaces the water table about 250 feet down to the south. Along the eastern boundary of the basin, the Chino and San Jose faults also are partial water barriers, separating groundwater flow within the Basin and the Chino subbasin of the Upper Santa Ana River Valley Groundwater Basin.

Table 19 indicates actual groundwater pumped over the last five years.

Table 19 – Groundwater Pumped for Last Five Years

Basin Designation	2005-06 (AFY)	2006-07 (AFY)	2007-08 (AFY)	2008-09 (AFY)	2009-10 (AFY)
Main San Gabriel Basin	9,091.1	9,582.4	8,862.7	8,492.5	6,580.0

VCWD has an adjudicated right to 3.01517% of the OSY of the Main San Gabriel Basin. Based on an average OSY of 198,800 AFY, VCWD's average groundwater allocation is 5,994.2 AFY.

As a party to the Main San Gabriel Basin adjudication, there is no limit to the quantity of groundwater that may be extracted, although replacement water must be purchased from USGVMWD for any volume beyond the sum of VCWD's share of the Operating Safe Yield and any temporary leases or purchases from other parties to the judgment that VCWD may arrange on its customers' behalf. Based on historical data related to



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groundwater production, VCWD has successfully produced up to 9,565.6 AFY of groundwater beyond its transfer commitments, which occurred in FY 2006-07. VCWD is confident that it can successfully obtain a combination of prescriptive rights, groundwater leases and purchases and replenishment water to achieve this level production in any given year as indicated in Table 20. The actual amount produced will be limited to the amount needed.

Table 20 – Groundwater Projected to Be Pumped

Basin Designation	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Main San Gabriel Basin	9,565.6	9,565.6	9,565.6	9,565.6	9,565.6

VCWD's approach to groundwater production is embodied in the Rules and Regulations of the Main San Gabriel Basin (see Appendix D).

4.3 Transfer Opportunities

§10631(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

VCWD's transfer opportunities are indicated in Table 21 and the sections that follow.

Table 21 – Transfer and Exchange Opportunities

Transfer Agency	Basis	Proposed Volume (AFY)
Transfer to SWS	Short-term	Per BPOU Agreement (Terminated)
Transfer to VV	Emergency	Limited
Transfer to Santa Fe Dam	Long-term	Per Agreement

4.3.1 Transfers to Suburban Water Systems

VCWD's transfers to Suburban Water Systems (SWS) were based on the Baldwin Park Operable Unit (BPOU) Project Agreement, Article 2 §2.1.1(b) which states:

The Valley County Water District Subarea One Subproject shall be owned and operated by VCWD. The maximum design capacity is 7,800 gpm and the estimated average operating capacity is 7,000 gpm. It is anticipated that the Subarea One Subproject will run on a continuous basis (24/7), except during routine maintenance. VCWD has agreed to transfer to SWS, and SWS has agreed to accept, a minimum of 5,500 gpm of water produced at the Subarea One Subproject.



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Transfers to SWS were terminated in August 2002, when management of the BPOU was assigned to the BPOU Project Committee per a comprehensive agreement among the Main San Gabriel Basin Water Quality Authority, the Main San Gabriel Basin Watermaster and the local purveyors.

4.3.2 Transfers to Valley View Mutual Water Company

VCWD provides transfers to Valley View Mutual Water Company (VV) on an emergency basis only.

4.3.3 Transfers to Santa Fe Dam Recreation Area

VCWD's transfers with the Santa Fe Dam Recreational Area are based on the *Agreement to Supply Potable Water and Fire Flow to the County of Los Angeles Santa Fe Dam Recreational Area by VCWD* (see Appendix E). Per the Agreement, the County agrees to pay a service fee per volume delivered and transfer adjudicated rights in the Main San Gabriel Basin to VCWD for the volume extracted or pay the retail price for water acquired by VCWD.

The Agreement is automatically renewed each year pending written notice of termination by either party.

Table 22 indicates the volume transferred on an annual basis to Santa Fe Dam per the Agreement since its inception in 2001.

Table 22 – Historical Transfers to Santa Fe Dam

Fiscal Year	Transfer (AFY)
2001-02	10.3
2002-03	12.3
2003-04	13.3
2004-05	13.2
2005-06	17.2
2006-07	16.7
2007-08	23.7
2008-09	30.3
2009-10	33.5

VCWD anticipated that this transfer agreement will remain in place through the planning horizon of this UWMP and that Los Angeles County will continue to transfer adjudicated rights in the Main San Gabriel Basin to VCWD so as not to interfere with VCWD's management of supply required to satisfy its primary obligations.



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4.4 Desalinated Water Opportunities

§10631(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

There are no opportunities for the District to develop desalinated water as a long-term supply.

4.5 Recycled Water Opportunities

§10633 Provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.

§10633(c) (Describe) the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

§10633(e) (Describe) the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

§10633(f) (Describe the) actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

§10633(g) (Provide a) plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

The development of recycled water in the western San Gabriel Valley is the purview of the Upper San Gabriel Valley Municipal Water District (USGVMWD). There is no current or planned direct use of recycled water at VCWD. As such, the projected use of recycled water is zero, and there are no incentives or plans for optimization of this source. Furthermore, the 2005 UWMP projected zero recycled water use by 2010 which is consistent with the actual recycled water use for 2010.



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4.5.1 Disposition of Wastewater Collection and Treatment

§10633(a) (Describe) the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

§10633(b) (Describe) the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

Wastewater generated within the VCWD service area is ultimately collected and treated at the Whittier Narrows Water Reclamation Plan (WRP) or the San Jose Creek WRP. These WRPs are part of the Joint Outfall System (JOS) which provides for the operation and maintenance of an interconnected system of wastewater collection, treatment, reuse, and disposal facilities across a large portion of the urban region. The JOS includes the following facilities:

- ◆ The Joint Water Pollution Control Plant (Carson)
- ◆ Whittier Narrows WRP (South El Monte)
- ◆ Los Coyotes WRP (Cerritos)
- ◆ San Jose Creek WRP (Industry)
- ◆ Long Beach WRP (Long Beach)
- ◆ Pomona WRP (Pomona)
- ◆ La Cañada WRP (La Cañada-Flintridge)

In FY 2007-08, the JOS produced a total effluent of 490,998 AFY. Of that total, 147,703 AFY met Title 22 standards for recycled water and 67,936 AFY (or 46.0%) was reused.

4.5.2 Recycled Water Opportunities

§10633(d) (Describe and quantify) the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

There are numerous potential uses for recycled water within the VCWD service area; however, there are currently no plans to bring recycled water to the area with the exception of the Groundwater Reliability Improvement Project (GRIP, see next section) which may provide groundwater recharge in the vicinity of the Santa Fe Dam and along



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the San Gabriel River. VCWD has no direct participation in GRIP but may benefit from improvements to groundwater reliability as a member of USGVMWD and a party to the Main San Gabriel Basin judgment. As such, the following is generally intended as a qualitative assessment of VCWD's potential recycled water uses:

- 💧 12 schools
- 💧 3 rock quarries
- 💧 2 city parks
- 💧 1 nursery
- 💧 Municipal and commercial landscaping
- 💧 Santa Fe Dam Recreation Area
- 💧 Numerous industrial applications

4.5.3 Recycled Water Planning

USGVMWD works in conjunction with the San Gabriel Valley Municipal Water District (SGVMWD), the Los Angeles County Sanitation Districts (LACSD), the Water Replenishment District of Southern California (WRD) and the Central Basin Municipal Water District (CBMWD) on the development of recycled water in the region. Per the USGVMWD 2010 UWMP and the San Gabriel Valley Council of Governments in a Technical Memorandum is April 21, 2011 titled *Watershed Stewardship Award Nominations*, USGVMWD's recycled water projects include the following in various stages of implementation:

Rosemead Extension

The Bureau of Reclamation and the Upper District completed the \$3.2 million Rosemead Extension Pipeline Project, the first Title XVI project constructed in Southern California using ARRA funds. The joint venture included \$600,000 in ARRA funds Reclamation granted to the Upper District. The Upper District funded the remaining project's balance of \$2.6 million with Upper District revenue. The combined funding allowed for installation of 11,500 feet of new pipeline and 26 service connections. The project is expected to save 620 acre-feet of potable water annually, enough to meet the needs of more than 1,200 households.

Whittier Narrows

Supplies the 2,500 acre Whittier Narrows Recreation Area with over two billion gallons of recycled water each year. The recycled water provides irrigation for a large public



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park, soccer, baseball and softball fields, a skeet shooting range and archery facility as well as the 18-hole golf course.

South El Monte High School

Converted high school to recycled water for irrigation of campus green areas and athletic fields. Will conserve nearly 40 million gallons of drinking water each year, enough to supply about 270 households.

Rose Hills Memorial Park

Will provide recycled water for irrigation purposes by extending an existing pipeline which stretches from the City of Industry through Hacienda Heights to West Covina. When completed, the project will supply more than 2.4 billion gallons of recycled water per year for irrigation in the San Gabriel Valley.

City of Industry

Will provide recycled water for irrigation purposes by extending an existing pipeline which stretches from the City of Industry through Hacienda Heights to West Covina. When completed, the project will supply more than 2.4 billion gallons of recycled water per year for irrigation in the San Gabriel Valley.

Groundwater Reliability Improvement Project (GRIP)

Local purveyors are planning to expand the use of recycled water for groundwater replenishment purposes by developing 25,000 AFY of recycled water at the San Jose Creek Water Reclamation Plant. The project includes improvement to treatment capacity and quality and improvements to recycled water distribution and replenishment infrastructure.

4.6 Future Water Projects

§10631(h) (Describe) all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.



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VCWD works diligently to maintain its groundwater supply infrastructure; however, there are no planned projects aimed at developing additional supplies. VCWD believes its current supply portfolio and management is adequate to meet all demand scenarios anticipated to occur within the planning horizon of this UWMP, as determined in Chapter 5 regarding supply reliability.



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5.1 General Description

§10620(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

VCWD prefers to provide all supply to its customers as groundwater extracted from the Main San Gabriel Basin. VCWD uses its rights as a party to the Main San Gabriel Basin judgment to best manage these local assets and to avoid reliance on imported water. As such, VCWD defers to the Upper San Gabriel Valley Municipal Water District (USGVMWD) regarding administration of issues related to acquiring replenishment water for purposes of recharging the Basin, a task which USGVMWD is ideally positioned for and suited to accomplishing in a manner consistent with the continued stewardship of the Basin.

5.2 Summary of Historical Water Year Data

§10631(c)(1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) an average water year, (B) a single dry water year, (C) multiple dry water years.

§10635(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

The VCWD has maintained detailed supply data since FY 1985-86. Demand variation related to normal, dry and multiple dry years has been derived this data set. Table 23 includes historical VCWD supply totals and precipitation data measured at the San Gabriel Fire Station¹².

¹² Per the Western Regional Climate Center website (<http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7785>) accessed March 24, 2011



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Table 23 – Historical Supply Data

Fiscal Year	Supply (AFY)	Precipitation (in.)
1985-86	7,986	21.9
1986-87	8,511	10.6
1987-88	8,763	17.0
1988-89	9,349	11.5
1989-90	10,260	11.3
1990-91	9,143	15.5
1991-92	7,763	22.8
1992-93	7,918	30.8
1993-94	8,472	10.6
1994-95	8,673	28.9
1995-96	9,305	16.0
1996-97	9,561	14.3
1997-98	8,590	38.2
1998-99	9,661	8.6
1999-00	10,703	14.0
2000-01	9,973	15.6
2001-02	10,970	5.4
2002-03	9,588	18.2
2003-04	11,744	11.2
2004-05	8,957	32.9
2005-06	9,074	6.5
2006-07	9,634	4.2
2007-08	9,000	13.9
2008-09	8,634	9.8
2009-10	8,313	14.3

The average precipitation for this period 25-year period is 16.1 inches. The normal year is considered the average. The single dry year is identified as FY 2006-07 which is the year with the lowest precipitation. There are three stretches of multiple dry years (i.e. three or more consecutive years with below average precipitation): (1) FY 1988-89 to FY 1990-91, (2) FY 1998-99 to FY 2001-02 and (3) FY 2005-06 to FY 2008-09. Complete and accurate data was not immediately available for the first stretch. Aggressive water conservation was felt to have the potential to skew the data available for the third stretch. Of the four years identified in the second stretch, normal groundwater recharge due to precipitation in FY 1997-98 was felt to dramatically influence the calculation of the OSY of FY 1998-99, so this year was not considered. As a result, the multiple dry years are identified as the three-year period from FY 1999-00 through FY 2001-02.

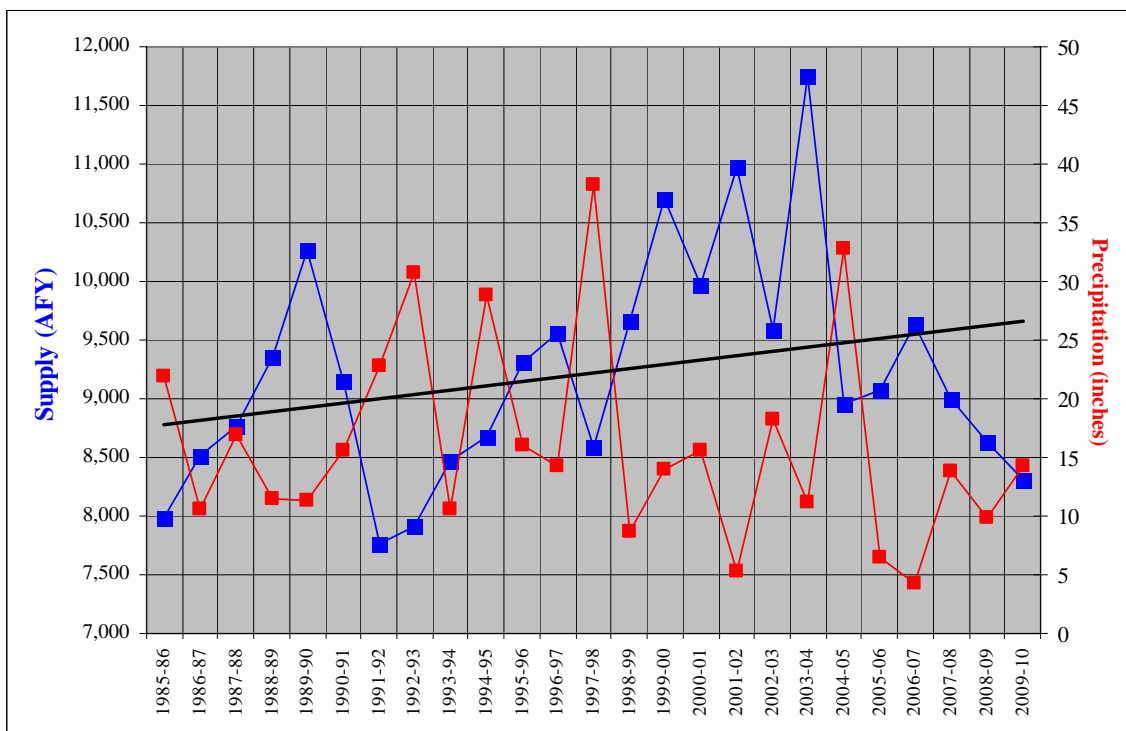
Figure 2 shows how supply has escalated in order to meet demand since FY 1985-86 and the relationship of supply to precipitation.



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Figure 2 – Precipitation and Normalized Annual Supply



5.2.1 Normal Year

Table 24 shows the supply and demand comparison for a normal year based on the following assumptions:

- Normal supply is as indicated in Table 17
- Normal demand is as indicated in Table 7

Table 24 – Normal Year Supply and Demand Comparison

Item	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Supply	10,356	10,356	10,356	10,356	10,356
Demand	9,201	9,372	9,536	9,695	9,846
Difference	1,155	984	820	661	510
Difference as % of Supply	11.2%	9.5%	7.9%	6.4%	4.9%
Difference as % of Demand	12.6%	10.5%	8.6%	6.8%	5.2%



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5.2.2 Single Dry Year

Table 25 shows the supply and demand comparison for a single dry year based on the following assumptions:

- Single dry year supply includes the actual groundwater production minus transfers in FY 2006-07 (9,566 AF) plus imported water as indicated in Table 17
- Single dry year demand was calculated as a per capita water use rate of 123.0 GPCD from Table 14 for year 2007 times the projected population as indicated in Table 4

Table 25 – Single Dry Year Supply and Demand Comparison

Item	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Supply	10,763	10,763	10,763	10,763	10,763
Demand	9,781	9,963	10,138	10,306	10,467
Difference	982	800	625	457	296
Difference as % of Supply	9.1%	7.4%	5.8%	4.2%	2.7%
Difference as % of Demand	10.0%	8.0%	6.2%	4.4%	2.8%

5.2.3 Multiple Dry Years

Table 26 shows the supply and demand comparison for multiple dry years based on the following assumptions:

- Multiple dry year supply includes the actual groundwater production minus transfers in FY 1999-00 (9,451 AF), FY 2000-01 (9,261 AF) and FY 2001-02 (9,467 AF) respectively plus imported water as indicated in Table 17
- Multiple dry year demand was considered to be higher than normal year demand and lower than single dry year demand and becoming progressively higher with each passing dry year. As a result, Year 1 was calculated considering a per capita water use rate of 120.0 GPCD, Year 2 at 121.0 GPCD and Year 3 at 122.0 GPCD times the projected population as indicated in Table 4



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Table 26 – Multiple Dry Year Supply and Demand Comparison

Year	Item	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
1	Supply	10,648	10,648	10,648	10,648	10,648
	Demand	9,543	9,720	9,890	10,055	10,212
	Difference	1,105	928	758	593	436
	Difference as % of Supply	10.4%	8.7%	7.1%	5.6%	4.1%
	Difference as % of Demand	11.6%	9.5%	7.7%	5.9%	4.3%
2	Supply	10,458	10,458	10,458	10,458	10,458
	Demand	9,622	9,801	9,973	10,139	10,297
	Difference	836	657	485	319	161
	Difference as % of Supply	8.0%	6.3%	4.6%	3.1%	1.5%
	Difference as % of Demand	8.7%	6.7%	4.9%	3.2%	1.6%
3	Supply	10,664	10,664	10,664	10,664	10,664
	Demand	9,702	9,882	10,055	10,222	10,382
	Difference	962	782	609	442	282
	Difference as % of Supply	9.0%	7.3%	5.7%	4.1%	2.6%
	Difference as % of Demand	9.9%	7.9%	6.1%	4.3%	2.7%

5.3 Potential Supply Issues and Constraints

§10631(c)(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

Planning documents inherently deal with uncertainties about the future. Uncertainty cannot be avoided; however, adequate documentation and applied reason ensures defensibility against legal challenges, and completeness and comprehensiveness of this UWMP. The following steps have been employed, documented as necessary, to satisfy issues surrounding supply uncertainty as they pertain to development of this UWMP:

- ◆ Acknowledge the uncertainty
- ◆ Specify the conclusion and how the conclusion was reached
- ◆ Reference supporting evidence
- ◆ Evaluate the likelihood that the conclusion is incorrect
- ◆ Provide an alternative in case the conclusion is proved incorrect



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- Respond to comments regarding the conclusion
- Pay attention to the wholesaler's plans
- Use the latest and best data available

The only supply uncertainty involves local water quality which is discussed in the following sections.

5.4 Water Quality

§10634 The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

VCWD prefers to rely entirely on groundwater extracted from the Main San Gabriel Basin. Most wells operated by VCWD exhibit some level of contamination and must be treated to meet drinking water standards prior to introduction into the distribution system.

VCWD currently operates three water treatment facilities which mitigate local groundwater contamination. Table 27 provides a brief summary of these facilities and their performance per the Main San Gabriel Basin Watermaster Annual Report for FY 2009-10.

Table 27 – Groundwater Treatment Facilities

Groundwater Source	Start Date	Total Water Treated		Contaminants Removed	
		FY 2009-10 (AFY)	Cumulative (AFY)	FY 2009-10 (lbs)	Cumulative (lbs)
Lante ¹³	June 1984	-	7,720	-	10,357
BPOU SA1-1 & SA1-2	December 2004	8,063	33,603	8,910	23,008
Maine East & West	June 1990	1,849	30,978	44	1,689
Nixon East & West	January 2004	3,434	14,742	60	147

With these water treatment facilities, VCWD has considerable capacity and flexibility in the use and management of its rights in the Main San Gabriel Basin. The 2009-10 VCWD Consumer Confidence Report (Appendix F) indicates that VCWD meets all water quality standards set forth by the Safe Drinking Water Act and the State.

¹³ Treatment capacity at the Lante plant was upgraded in 2004 as part of the Super Fund site called the Baldwin Park Operable Unit (BPOU). Treatment equipment installed in 1984 is currently offline.



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5.4.1 Lante Treatment Facility and BPOU

The current Lante Treatment Plant was constructed as part of the Baldwin Park Operable Unit, a Super Fund site, whose purpose is to mitigate the spread of a contaminant plume in the Main San Gabriel Basin while promoting the beneficial use of treated water produced during the mitigation process.

Groundwater from three wells, designated Lante, SA1-1 and SA1-2, is treated at the Lante Treatment Plant for VOCs¹⁴, perchlorate, NDMA¹⁵ and 1,4-Dioxane. The plant has a design capacity of 7,800 gpm.

5.4.2 Maine Street Treatment Facility

The Maine Street Treatment Facility treats groundwater at a design capacity of 6,000 gpm from two wells designated as Maine East and Maine West. The process consists of LPGAC¹⁶ treatment which removes VOCs to non-detect levels.

5.4.3 Clinton O. Nixon Treatment Facility

The Nixon Treatment Facility treats groundwater at a design capacity of 3,400 gpm from two wells designated as Nixon East and Nixon West. The process consists of LPGAC treatment which removes VOCs. Of particular concern at is the treatment of PCE¹⁷ which was detected in the Nixon East and Nixon West wells in 2004.

5.5 Water Shortage Contingency Planning

§10632(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

§10632(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

§10632(d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

¹⁴ VOCs = Volatile Organic Compounds. The primary VOCs detected are carbon tetrachloride, 1,2-dichloroethane, trichloroethylene and tetrachloroethylene.

¹⁵ NDMA = nitrodimethylamine

¹⁶ LPGAC = Liquid Phase Granulated Activated Carbon

¹⁷ PCE = perchloroethylene



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§10632(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

§10632(f) Penalties or charges for excessive use, where applicable.

§10632(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

§10632(h) A draft water shortage contingency resolution or ordinance.

§10632(i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

VCWD has no formal water shortage contingency plan. There are ordinances which define portions of the typical content of a water shortage contingency plan, and those ordinances have been cited below as they pertain to the various mandates included in CWC §10632. Preparation of a water contingency plan has been determined to be unnecessary due to VCWD's preferred reliance on groundwater from the Main San Gabriel Basin which is very closely monitored and managed making it an extremely reliable source. In the event that VCWD becomes more reliant on imported water, the District will be subject to water shortage contingency planning in place at the wholesale level.

5.5.1 Rationing Stages

VCWD has no formal rationing stages. In the event of a drought or other water shortage, the VCWD Board of Directors would meet in emergency session to determine the possible moratorium on new connections. In the event that VCWD is dependent upon imported water from USGVMWD, VCWD would be subject to MWD's Water Surplus and Drought Management Plan (WSDM). This is a ten-year plan used to direct MWD's resource options to interdependence of surplus and shortage actions and is a coordinated plan that utilizes all available resources to maximize supply reliability. In addition, MWD Resolution 7.1-2006 mandates that VCWD give priority to supplying water to new affordable housing projects in the event of a water shortage. The USGVMWD is 100 percent reliant upon imported water from MWD.

Priorities for use of available water, based on CWC Chapter 3 and community input are:

- 💧 Health and Safety – interior residential and fire fighting



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- Commercial, industrial, and governmental – maintain jobs and economic base
- Permanent crops/annual crops – taking five to ten years to replace
- Existing landscaping – especially trees and shrubs
- New demand – projects without permits when shortage declared

5.5.2 Mandatory Prohibitions and Consumptive Reduction Methods

VCWD Ordinance 4-91-120 (see Appendix G) establishes mandatory prohibitions against excessive water use and consumptive reduction methods which consist of the following actions:

- Law watering and landscape irrigation with potable water is permitted only between the hours of 6 pm and 9 am.
- Watering is permitted at any time if a hand-held hose equipped with a positive shut-off nozzle is used, hand-held faucet-like bucket or five gallons or less is used, or a drip irrigation system is used.
- No customer shall cause or allow the water to run off landscape areas into adjoining streets, sidewalks or other paved areas due to incorrectly directed or maintained sprinklers of excessive watering.
- Washing of buildings, facilities, equipment, autos, trucks, trailers, boats, airplanes and other types of mobile equipment is prohibited except where a hand-held hose equipped with a positive shut-off nozzle for quick rinses is used. Whenever possible, such as when washing vehicles, a bucket wash is encouraged.
- Washing are exempt for these regulations where the health, safety and welfare of the public is contingent upon frequent washing of vehicle or other facility and equipment cleaning, garbage trucks and vehicles used to transport food and perishables.
- Water shall not be used to wash down hard surfaces such as sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire, sanitation or health hazards.
- Draining and refilling swimming pools and spas is prohibited. Adding make up water to swimming pools and spas is permitted only within monthly allocation limits.
- Filling/refilling of decorative ponds, fountains, and artificial lakes is prohibited.
- Water from fire hydrants shall be used only for fire fighting and public welfare activities.



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- Flushing of water mains will not be permitted except as necessary to protect the public health.
- Restaurants shall not serve water to their customers unless specifically requested.
- Leaks must be repaired as soon as discovered and shall not be allowed to continue for more than 72 hours.
- No water shall be provided from a new water service installed after the effective date of this ordinance unless the plumbing fixtures connected to the new water service and ultra low volume water use fixtures.

5.5.3 Penalties and Charges

VCWD Ordinance 4-91-120 (see Appendix G) establishes penalties against excessive water use which consist of the following:

- Violation of Ordinance 4-91-120 is punishable by rate surcharges for excessive water usage or an administrative fee for service termination and flow restriction for violation of Section 5, Use Restrictions.
- In addition, a written notice will be given to each customer upon initial violation of the Ordinance. The notice will be given to the person who applied for the water service at the billing address and will warn the customer of the consequences. The written notice will also advise the customer of the violation and the rate surcharges and advise the customer of the opportunity to request administrative review.
- A customer who exceeds their water allotment shall pay a rate surcharge of \$0.95 per CCF for all water delivered in excess of their allotment. This rate surcharge may be adjusted by resolution of the VCWD Board of Directors to reflect current charges to VCWD for not meeting regional conservation requirements.
- VCWD may terminate service or install a flow restricting device at a customer's meter for any customer who exceeds their water allotment more than twice or violates Section 4, Use Restrictions, more than twice during an emergency water conservation period. A fee equal to the current VCWD fee for processing a meter turnoff will be applied to the customer's account. The termination of service or service flow restrictor shall be enforced for a minimum of 24 hours for the first violation increasing 24 hours for each subsequent violation of this Ordinance.
- Rate surcharge and administrative payments may be used by the VCWD to reduce the cost of water served, provide incentives for water conservation, fund penalties assessed against VCWD and to administer this Ordinance.



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5.5.4 Determining Actual Reductions

VCWD maintains a sophisticated computerized monitoring system which allows for access to continuous supply data. VCWD will utilize this system in the event of a water shortage to monitor the impact of the implementation of mandatory conservation measures.

5.5.5 Impacts of Emergency Water Reduction Plan Implementation

In the unlikely event that VCWD becomes reliant on imported water and simultaneously MWD water shortage contingency planning is implemented, the financial impacts on VCWD may be severe. VCWD delivers water at a very low price to its customers, many of whom are in the lower to middle income range. There would be a drop in revenue and an increase in the cost of purchasing imported water since MWD's prices are considerably higher than the cost of extracting groundwater from the Main San Gabriel Basin. However, VCWD does not consider this eventuality to impact its planning efforts or the management of its resources and prefers to focus on maintaining the reliability of its groundwater infrastructure.

5.6 Drought Planning

§10632(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

The 2008 VCWD Hazard Mitigation Plan specifies drought as moderate risk. The plan observes that droughts occur infrequently (once every 8 to 50 years), that a widespread area would be impacted and that there is no limit on groundwater production from the Main San Gabriel Basin. The plan also acknowledges potential secondary impacts including implementation of a water shortage contingency plan and disruption of water service if the drought is prolonged. Historically, VCWD has successfully engaged its customers to practice voluntary water conservation which has eliminated the need for mandatory restrictions on water usage.

Table 28 shows the supply and demand comparison for multiple dry years beginning immediately based on the following assumptions:

- ◆ Multiple dry years are FY 1999-00 through FY 2001-02 as discussed in §5.2
- ◆ Multiple dry year supply includes the actual groundwater production minus transfers in FY 1999-00 (9,451 AF), FY 2000-01 (9,261 AF) and FY 2001-02 (9,467 AF) respectively plus imported water as indicated in Table 17
- ◆ Multiple dry year demand was considered to be higher than normal year demand and lower than single dry year demand and becoming progressively higher with each passing dry year. As a result, Year 1 was calculated considering a per capita



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water use rate of 120.0 GPCD, Year 2 at 121.0 GPCD and Year 3 at 122.0 GPCD times the current population as indicated in Table 4

Table 28 – Response to an Immediate Drought

Year	Item	(AFY)
1	Supply	10,648
	Demand	9,543
	Difference	1,105
	Difference as % of Supply	10.4%
	Difference as % of Demand	11.6%
2	Supply	10,458
	Demand	9,622
	Difference	836
	Difference as % of Supply	8.0%
	Difference as % of Demand	8.7%
3	Supply	10,664
	Demand	9,702
	Difference	962
	Difference as % of Supply	9.0%
	Difference as % of Demand	9.9%



CHAPTER SIX – DEMAND MANAGEMENT MEASURES

6.1 General Description

§10631(f)(1) and (2) (Describe and provide a schedule of implementation for) each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following: (A) water survey programs for single-family residential and multifamily residential customers; (B) residential plumbing retrofit; (C) system water audits, leak detection, and repair; (D) metering with commodity rates for all new connections and retrofit of existing connections; (E) large landscape conservation programs and incentives; (F) high-efficiency washing machine rebate programs; (G) public information programs; (H) school education programs; (I) conservation programs for commercial, industrial, and institutional accounts; (J) wholesale agency programs; (K) conservation pricing; (L) water conservation coordinator; (M) water waste prohibition; (N) residential ultra-lowflush toilet replacement programs.

§10631(f)(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

§10631(f)(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

§10631(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following: (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors; (2) Include a cost-benefit analysis, identifying total benefits and total costs; (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost; (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.



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VCWD takes great pride in local achievements in the area of water conservation and the positive impact that reductions in water use have had on area communities. Voluntary water conservation has had the biggest impact of all for which residents within the VCWD water service area should be commended. Also noteworthy are the efforts of area and regional wholesalers, specifically Upper San Gabriel Valley Municipal Water District (USGVMWD) and Metropolitan Water District of Southern California (MWD), in their implementation of certain demand management measures not within the purview or means of VCWD. Significant strides have been made in recent years as indicated in Table 14 which shows an average water use level of 115.7 gallons per capita per day (GPCD). This is already below the compliance water use target of 118.3 GPCD as indicated in Table 16, mandated by the California Water Conservation Act of 2009. Precise quantification of the impact of individual demand management measures is elusive; however, the aggregate impact of the demand management measures, as implemented at both the retail and wholesale levels, is credited with the achievement of the current water use level. VCWD will continue its current intensity of implementation of demand management measures and foresees maintaining the water use efficiency of 115.7 GPCD through the planning horizon of this UWMP.

VCWD is not a member of the California Urban Water Conservation Council (CUWCC) and therefore has not submitted any reports on water conservation pursuant to the Memorandum of Understanding regarding Urban Water Conservation in California (MOU). However, VCWD is a member agency of USGVMWD who is a signatory to the MOU and who provides appropriate reporting to the CUWCC on all water conservation activities within its service area and purview.

The sections that follow provide information of the status and implementation of the various demand management measures.

6.2 Residential Water Survey Programs

The VCWD water system is fully metered and monitored by a computerized billing system that automatically audits each customer's water usage. VCWD is alerted to unusual variations in consumption behavior which may indicate leaks, inoperable meters, unauthorized usage or excessive usage. In the event of an alert, a service representative is dispatched at the customer's request to inspect the customer's system recommend repairs to be performed by the responsible party, as needed.

Based on the effectiveness of currently implemented demand management measures, implementation of additional aspect of the residential water survey programs has been deemed by the District to be unnecessary for achieving near-term and long-term water conservation goals.

6.3 Residential Plumbing Retrofit

Bathroom and kitchen faucet aerators are distributed at community events. These events are coordinated with USGVMWD and the cities whose residents are served by VCWD.



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Additional implementation of residential plumbing retrofit is provided by USGVMWD and MWD through a variety of rebate programs.

6.4 Water Audits, Leak Detection and Repair

VCWD's system is fully metered and monitored through a computerized billing system that performs regular audits of customers' water usage. Unusual variations in consumption are reported as possible indicators of leak or inoperable meters. The system also records customer requests for inspection of their service connection for supply related problems. A VCWD service representative responding to the customer request will determine whether the issue exists in the distribution system, in which case VCWD will make the necessary repairs, or within the customer's service connection, in which case VCWD will make a repair recommendation to the customer (see Appendix J – Ordinance 125, Rules and Regulations for Water Service). This program serves to improve the distribution system, to improve the customers' connections and to inform customers of unusually high usage.

Water loss is under 6% of annual production for the past two years and is expected to decrease as a result of various maintenance programs. Since water loss is relatively low and stable, VCWD has determined that a system-wide water audit is not warranted at this time.

6.5 Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections

VCWD is fully metered and delivers all water on a volumetric basis. VCWD adopted the current commodity rate structure in June 8, 2009 (see Appendix H).

6.6 Large Landscape Conservation Programs and Incentives

VCWD has deferred implementation of landscaping conservation to USGVMWD who has instituted the Synthetic Turf Grant School Program. The goal of the program is to assist schools with funding for retrofitting large landscaped areas with synthetic turf. Through this program, USGVMWD offers grants of up to \$75,000 per site to deflect installation costs. To date, five schools within the USGVMWD service area have participated. The service life of synthetic turf is estimated at ten years and the water savings is estimated at 5.3 AFY per site.

6.7 High-efficiency Washing Machine Rebate Programs

VCWD has deferred implementation of high-efficiency washing machine rebate programs to USGVMWD who is working in partnership with MWD, DWR, the CalFed Bay Delta Program and the Bureau of Reclamation to fulfill this demand management measure. Qualified VCWD customers are eligible for a rebate of \$200 per washing machine. To date, 6,656 rebates have been provided to customers within the



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USGVMWD service area. The water savings is estimated at 0.024 AFY per washing machine.

6.8 Public Information Programs

Public information on water conservation is disseminated by VCWD via mailing of literature, press releases, advertising, informational tours of its facilities, participation in advisory committees, booths at local community events and its website.

6.9 School Education Programs

VCWD provides materials and tours as part of its 3rd Grade Program aimed at instructing area students in the importance of water conservation.

Additional schools education programs are available to VCWD residents through USGVMWD who provides the following:

- ◆ Water Awareness Art Contest
- ◆ Solar Cup Competition
- ◆ Water Education Grant Program
- ◆ Annual Art Poster for grades K through 3 and 4 through 6
- ◆ T-shirt Art Contest for grades 7 through 12
- ◆ Water Educational Poster
- ◆ Water Resource Library

6.10 Conservation Programs for CII Accounts

VCWD has deferred implementation of CII conservation programs to USGVMWD who offers rebates to retrofit existing high water-use fixtures with efficient water-use fixtures. Current CII conservation programs include the following:

- ◆ Commercial high efficiency toilet retrofit
- ◆ Commercial high efficiency toilets for new construction
- ◆ Ultra-low-water and zero-water urinal retrofit
- ◆ Ultra-low-water and zero-water urinals for new construction
- ◆ Water broom



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- Connectionless food steamer
- Ice making machine Tier III standard
- Dry vacuum pump
- Cooling tower conductivity controller
- Cooling tower pH controller
- Weather-based and central computer irrigation control
- Rotating nozzles for pop-up spray head sprinkler retrofit
- Large rotating nozzle sprinklers

6.11 Wholesale Agency Programs

USGVMWD provides the following services in support of water conservation projects:

- Financial incentive
- Technical support
- Staffing

Additional information is available in Appendix I.

6.12 Conservation Pricing

The current 3-Tier Pricing structure is as follows:

- First 400 cubic feet: \$0.29
- Next 1,400 cubic feet: \$0.69
- Over 1,800 cubic feet: \$1.15

6.13 Water Conservation Coordinator

VCWD does not have a designated Water Conservation Coordinator. The duties of such a coordinator are currently shared by the VCWD customer service staff members.

6.14 Water Waste Prohibition

Per §14.2 (Waste of Water Prohibited) of Ordinance 125 (Rules and Regulations for Water Service):



CHAPTER SIX – DEMAND MANAGEMENT MEASURES

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No customer shall knowingly permit waste or leaks of water. Where water is wastefully or negligently used on the customer's service address, the District may discontinue service, if such conditions are not corrected within five days after the District has given the customer written notice thereof.

6.15 Residential Ultra-low-flush Toilet Replacement Programs

VCWD has deferred implementation of residential ULFT replacement programs to USGVMWD and MWD who offer the HET (High-efficiency Toilet) program. ULFT's are distributed free to qualifying residents. To date, 26,960 ULFT's have been provided. The water savings is estimated at 0.037 AFY per ULFT.



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